

REMARKS

Claims 11-38 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 3-7 and 9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Plummer (U.S. Pat. No. 3,718,078). This rejection is respectfully traversed. Notwithstanding and solely in the interest of expediting prosecution, claims 1, 3-7 and 9 are cancelled. Accordingly, this rejection is moot.

REJECTION UNDER 35 U.S.C. § 103

Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Plummer (U.S. Pat. No. 3,718,078) in view of Stevenson (U.S. Pat. No. 6,631,030). Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Plummer (U.S. Pat. No. 3,718,078). Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Plummer (U.S. Pat. No. 3,718,078) in view of DePalma (U.S. Pat. No. 3,682,530). These rejections are respectfully traversed. Notwithstanding and solely in the interest of expediting prosecution, claims 2, 8 and 10 are cancelled. Accordingly, these rejections are moot.

NEW CLAIMS

New claims 11-38 are added. Claims 11, 15, 18, 19, 20, 23, 25 and 26 are independent. The invention defined in claims 11, 15 and 18 is directed to a substrate including a plurality of concave portions. One of the features of the claimed invention is that a standard deviation that is obtained using a large number of distances between two arbitrary and adjacent concave portions is more than 3% of the average value of the large number of distances. Another feature of the claimed invention is that concave portions formed with a temporal difference are mixed in the plurality of concave portions. Still another feature of the claimed invention is that first concave portions are formed by a first etching process and second concave portions, which are formed between the first concave portions, are formed by a second etching process carried out after the first etching process so that the second concave portions are mixed in the first concave portions, whereby the substrate has a usable area in which all of the first and second concave portions are formed and a ratio of an area occupied by all the concave portions in the usable area to the entire usable area is at least 90% when viewed from a top of the substrate.

The invention defined in claim 25 is directed to a method of manufacturing a substrate with a plurality of concave portions. According to claim 25, the plurality of concave portions are formed by two etching processes with a temporal difference.

According to claims 11, 15 and 18, when the claimed substrate is used for manufacturing a microlens substrate, the manufactured microlens substrate is provided with a plurality of microlenses arranged in an optically random order. Therefore, when

such a microlens substrate is used for a transmission screen, it is possible to effectively prevent the occurrence of moire.

According to claim 25, since the etching process is carried out twice for the substrate, the manufactured substrate has an enhanced degree of randomness (irregularity). Thus, as is the case with the substrate described above, when the substrate is used for manufacturing a microlens substrate, the manufactured microlens substrate is provided with a plurality of microlenses arranged in an optically random order. Therefore, when such a microlens substrate is used for a transmission screen, it is possible to effectively prevent the occurrence of moire.

In contrast to the claimed arrangement, Plummer discloses a smoothly granulated optical surface and a method of making the same. As seen in FIG. 6, neither substrate 20 nor substrate 22 corresponds to the substrate with a plurality of concave portions of the present invention, but rather to Fresnel condenser lenses (see column 7, lines 3-9). Therefore, since Plummer does not disclose a substrate with a plurality of concave portions for manufacturing microlenses, Applicant respectfully submits that Plummer cannot be applied under 35 U.S.C. 102(b).

Further, Stevenson et al. disclose projection screens and methods for making such projection screens. In Stevenson et al., glass microspheres constructed from recycled glass are used as inexpensive filler materials, and the glass microspheres are arranged on a sheet in an optically random manner. Moreover, De Palma et al. disclose polymeric rear projection screens.

However, these cited references do not disclose a degree of randomness (irregularity) of the microlenses (or glass microspheres), and they do not teach or

suggest this feature of the present invention. In addition, they do not disclose that the concave portions are formed with a temporal difference, and that by such formation (that is, such a method of forming the concave portions), a ratio of an area occupied by all the concave portions in the usable area relative to the entire usable area is at least 90% when viewed from a top of the substrate.

Still further, these cited references do not disclose a method of manufacturing a substrate with a plurality of concave portions in which the plurality of concave portions are formed by two etching processes with a temporal difference (that is, an etching process is carried out twice with the temporal difference).

For the reasons described above, Applicant submits that the present invention as defined in claims 11, 15, 18 and 25 are patentable over the prior art (Plummer, Stevenson and De Palma). Further, since the present invention defined in the claims described above is patentable, Applicant also submits that the present invention defined in claims 19, 20, 23 and 26 (microlens substrate, transmission screen, and rear projection) is patentable.

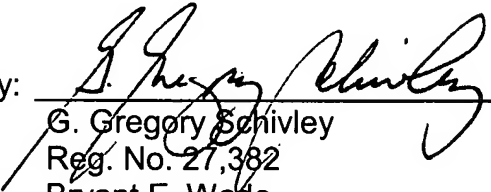
CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: 
G. Gregory Schivley
Reg. No. 27,382
Bryant E. Wade
Reg. No. 40,344

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

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